

820 Series Diesel Tractors



JOHN DEERE

SERVICE MANUAL

820 Series
Diesel Tractors

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**SERVICE MANUAL FOR
JOHN DEERE DEALERS**

**820 DIESEL TRACTOR
SERIES**

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TO THE JOHN DEERE SERVICEMAN

This Service Manual contains maintenance instructions for the John Deere "820" Series Diesel Tractor. Included are complete instructions for removal, disassembly, inspection, repair, assembly and installation of the major parts and assemblies of the tractor.

In addition, the manual contains brief descriptions of the more complicated systems of the tractor, and tells how they operate. Dimensions of many new wearing parts are given as an aid in determining when parts replacement is necessary. Tests and adjustments, required to keep the tractor operating efficiently, are explained in detail.

The manual also contains complete instructions for performing the predelivery, delivery, after-delivery and 150-hour services outlined in the Service Policy which accompanies each tractor. By using this information, you will be sure that the tractor is ready to perform efficiently and economically when it is delivered to its new owner and that it will be restored to peak efficiency when it is brought into your shop for after-delivery services.

A section on "Tune-Up and Adjustment" contains instructions for performing the services necessary to help the tractor perform efficiently and economically after it has been in the field for some time.

The sections in this manual concerning the power steering mechanism, fuel injection pumps and nozzles, and electrical equipment are limited mainly to removal and installation instructions.

Full maintenance instructions for the power steering mechanism are given in *Service Manual*

SM-2016, "Power Steering for John Deere Tractors." When additional information, concerning the fuel injection pumps and nozzles, is required, see *Service Manual SM-2018, "Testing and Servicing Fuel Injection Pumps and Nozzles."*

Instructions for testing, repairing and adjusting the generator and electric cranking motor are given in *Service Manual SM-2000, "Tractors and Engines (General)."* For additional information concerning the Custom Powr-Trol mechanism, consult *Service Manual SM-2022, "Custom Powr-Trol."*

Although this manual is prepared specifically as an aid to proper maintenance of the "820" Series Diesel Tractor, much of the information it contains applies equally (with minor variations) to the Model "80" Tractor. It can be used to advantage when maintenance problems concerning the Model "80" Tractor arise.

This manual was planned and written for the Service Department; its place is in the shop. Use the manual whenever in doubt about correct maintenance procedures. Use it as a text book for training new Service Department personnel who are unfamiliar with John Deere Tractors.

Daily use of the Service Manual as a guide for any and all service problems will reduce error and costly delay to a minimum and assure you the best in finished service work. In many instances your customer's confidence in your work will be improved when he sees you using the Service Manual. He knows you are following approved maintenance procedures and making proper adjustments. There is no guesswork when you use the manual.

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Section 10

DESCRIPTION, OPERATION, AND SPECIFICATIONS

Group 5

DESCRIPTION

The John Deere "820" Series diesel-engine-powered tractor, is a heavy-duty five-bottom plow tractor. The engine develops approximately 67-1/2 horsepower at the belt and approximately 61-3/4 at the drawbar.

The tractor is of standard-tread design with provision made to widen the rear wheel tread 4 inches with 34-inch tires or 8 inches with 26-inch tires. This is an advantage when operating in unusually muddy conditions.

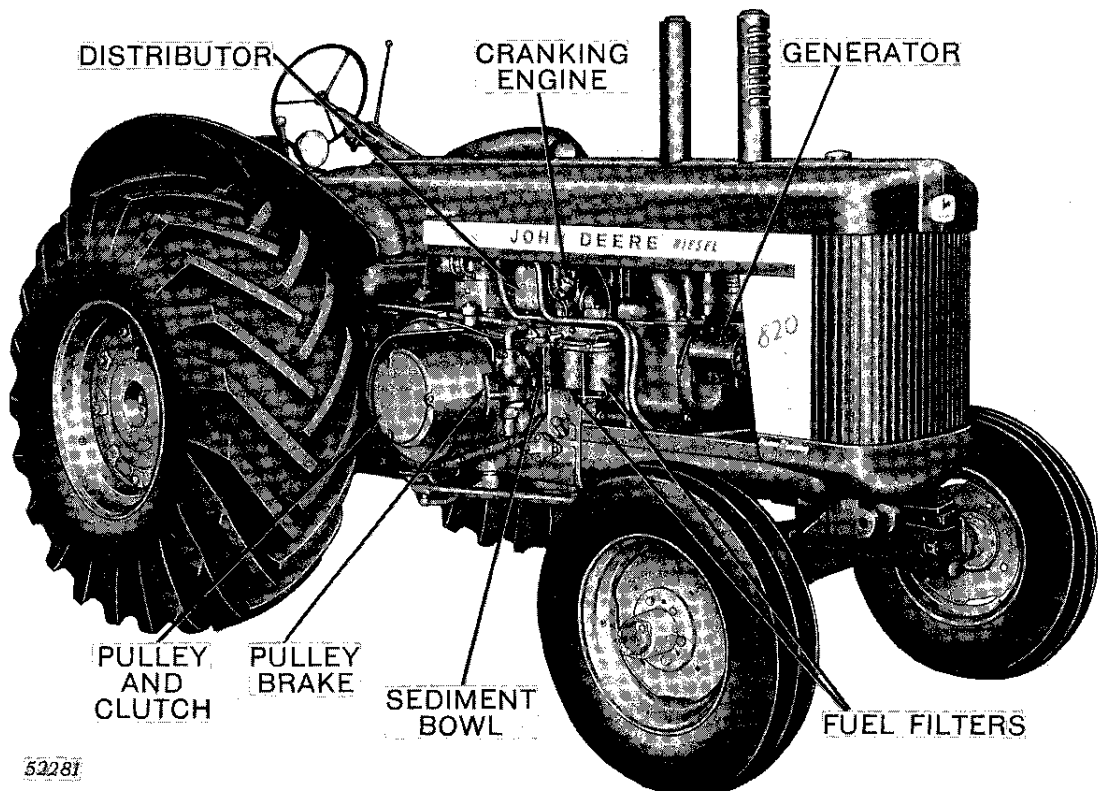
The tractor has six forward speeds and one reverse speed.

The features of the tractor are described briefly in the following paragraphs. Full description of each of the assemblies is given in the various sections throughout this manual.

SERIAL NUMBERS.

Each tractor bears a serial number located on the right-hand side of the main case just in front of the belt pulley.

The Powr-Trol valve housing and hydraulic remote cylinders also bear serial numbers.



52281

Figure 10-5-1—John Deere "820" Series Diesel Tractor—Pulley Side

DIESEL ENGINE.

The tractor is powered by a four-stroke cycle, two-cylinder, valve-in-head, horizontal, cross-mounted full diesel engine with a displacement of 471-1/2 cubic inches. The bore is 6-1/8 inches, the stroke is 8 inches, and the rated load speed is 1125 rpm.

The crankshaft is supported in three main bearings. Rotation is counter-clockwise when viewed from the flywheel side. The oiling system is of the force-feed pressure type with a full-flow oil filter. Engine speeds are controlled by a fly-weight type governor. Full automatic crankcase ventilation is provided by clean air drawn through the cranking engine air cleaner.

CRANKING ENGINE.

The diesel engine is cranked by means of a four-cylinder V-type gasoline engine having a 2-inch bore, 1-1/2-inch stroke and a rated load speed of 4500 rpm. Engine speed is controlled by a variable-speed centrifugal-type governor. The en-

gine is equipped with a separate oil pump to assure pressure lubrication of moving parts.

The engine is also equipped with a water pump and thermostat. By-pass cooling assures quick warm-up for greater efficiency, particularly in cold weather.

The cranking engine fuel system consists of a 1-quart gasoline tank mounted underneath the tractor cowl, and down-draft carburetor. Clean air is assured by a separate oil-wash-type air cleaner. A 6-volt battery, coil and distributor furnish ignition. The distributor contains two sets of points and associated parts—one set for each bank of cylinders. The distributor has no spark advance mechanism.

CRANKING ENGINE CRANKING.

The cranking engine is cranked by means of a 6-volt automotive-type electric motor. The motor is equipped with a Bendix engaging mechanism and a solenoid switch which is activated by a push button on the tractor dash. The ignition switch is also located on the dash.

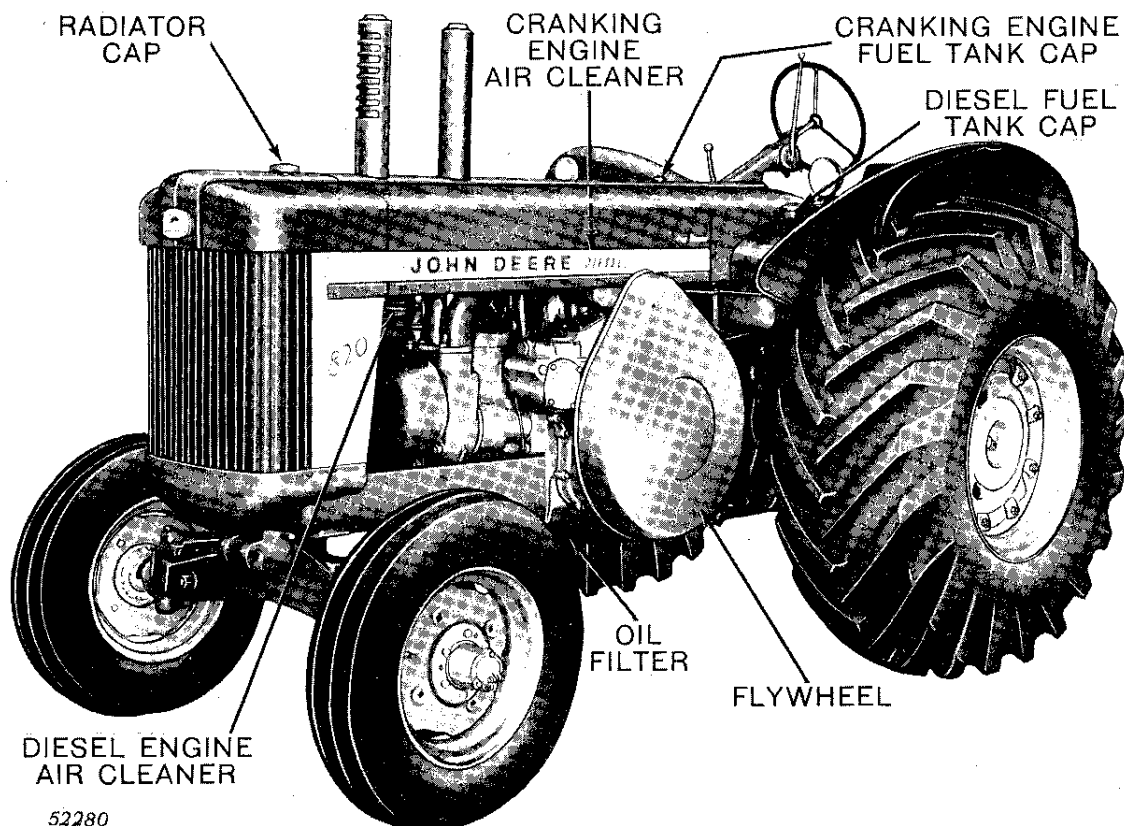


Figure 10-5-2—John Deere "820" Series Diesel Tractor—Flywheel Side

DIESEL ENGINE CRANKING.

A transmission with automotive-type clutch is used to connect the cranking engine to the diesel engine for cranking. The transmission includes an over-running clutch to protect the cranking engine when the diesel engine starts. Two levers are used when cranking the diesel engine. One lever is used to decompress the diesel engine and the other lever is used, first to engage the transmission pinion with the diesel engine flywheel, and then to engage the cranking engine clutch.

HEAT EXCHANGER.

Hot exhaust gases from the cranking engine are piped to a chamber surrounding the diesel engine air intake pipe where they warm the incoming air to make starting easier. After flowing through the heat exchanger the exhaust gases are expelled to the atmosphere. A muffler is provided to quiet the cranking engine exhaust noise.

COOLING SYSTEM.

Both engines are cooled by an interconnected pressure-type cooling system with a capacity of 8-3/4 U.S. gallons. Adequate circulation is maintained through the engines by a centrifugal-type water pump attached to the rear of the bottom radiator tank. This pump is driven by a belt from the fan drive. There is a similar gear-driven pump attached to the cranking engine. Proper engine temperature is assured by a thermostat in each of the main engine cylinder head water outlet openings. The cranking engine has its own thermostat located in the water outlet from the water manifold.

DIESEL ENGINE FUEL SYSTEM.

A 32-1/2 U.S. gallon tank is provided for diesel fuel. A fuel shutoff is located at the bottom of the fuel tank. A sediment bowl and two stages of micronic-type fuel filters prevent entrance of dirt or other foreign substances into the fuel injection system.

Fuel is injected into the cylinders under high pressure at precisely the correct moment by two

injection nozzles located in the cylinder head. The spray tips of the nozzles protrude into the combustion chambers. Fuel is supplied to the nozzles by two injection pumps located in a compartment in the top of the cylinder casting. The pumps are operated by the engine camshaft. The amount of fuel delivered by the pumps to the nozzles is controlled by the governor and by the position of the speed control lever. An adequate supply of fuel from the filters to the pumps is assured by a fuel transfer pump driven from the right-hand end of the diesel engine camshaft.

CLUTCH.

A dry-disc, hand-operated clutch is located in the belt pulley. When the clutch is disengaged, a brake prevents pulley rotation.

TRANSMISSION AND DIFFERENTIAL.

The transmission sliding gear shaft and countershaft are mounted crosswise in the main case. Shifting through the six forward and one reverse speeds is accomplished by one shift lever. Design of the gear shifters is such that the gears are locked in position when shifted into gear.

The differential is of conventional design with a ring gear and spider driven directly by a pinion on the countershaft.

BRAKES.

Individually operated foot brakes are provided to stop the tractor, hold it on inclines or to assist in making short turns. Each brake has two internal-expanding shoes and a cast-iron drum with a shaft and a gear that meshes with the final drive gear. The brakes can be locked in the engaged position.

STEERING MECHANISM.

The tractor can be equipped with manual steering or optional hydraulic power steering. The manual system is of the worm and gear type with adjustments provided to compensate for all wear. The power steering system includes a gear-type hydraulic pump driven by the fan drive shaft assembly, a valve assembly controlled by the



steering shaft, and a circular hydraulic cylinder which imparts turning motion to the steering spindle and front wheels.

FRONT WHEELS.

The front wheels are equipped with 7.50 x 18 tires. The wheel disks are reversible to give added tread width necessary under certain conditions.

The rear wheels can be equipped with either 14-34, 15-34, or 18-26 tires. 15-34 or 18-26 cane and rice tires are also available. By changing the position of the tire rim on the wheel and reversing the rim and tire, additional width of rear wheel tread can be obtained for use under extremely muddy conditions.

POWER TAKE-OFF SHAFT.

Tractors can be purchased without power take-off shaft or with optional engine-driven "live" power shaft. The "live" power take-off shaft is equipped with a self-contained clutch permitting operation of PTO equipment independently of tractor ground travel. The shaft conforms to ASAE-SAE standards.

HYDRAULIC SYSTEM.

The tractor can be equipped with hydraulic Powr-Trol, which will raise, lower or regulate implements by means of remote cylinders. The Powr-Trol system is "live"; that is it can be operated when the engine is running, whether the tractor is moving or not. The system may be

equipped with either a dual function valve housing or a single function valve-housing. The dual function housing permits use of one or two remote cylinders. When equipped with two remote cylinders, they can be operated either separately or simultaneously. The dual valve housing will accommodate double-acting remote cylinders only.

The single function valve housing operates one remote cylinder only. The cylinder may be either of the single-acting or double-acting type.

The gear-type hydraulic pump is mounted on the timing gear housing cover at the forward end. It is driven from the engine crankshaft through the cam gear. Provision is made to disengage the pump when the Powr-Trol is not being used (Figure 10-5-3).

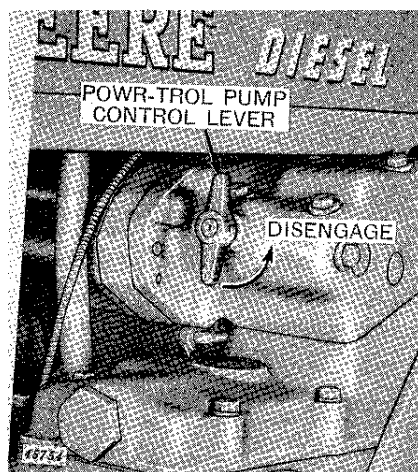


Figure 10-5-3—Powr-Trol Pump Control Lever

Group 10

STARTING AND STOPPING THE ENGINES

PRELIMINARY STEPS

- (1) Set gear shift lever in neutral and pull the diesel engine clutch lever to the disengaged position.
- (2) In cold weather disengage the Powr-Trol pump to relieve drag on the engine caused by cold oil.
- (3) Make sure that the fuel shut-off valve, located underneath the main fuel tank is open.
- (4) See that the diesel engine speed control lever (Figure 10-10-1) is in the **stopped** position (all the way to the rear) with the stop button pulled out. The lever **must** be in this position.
- (2) See that the cranking engine throttle lever is turned counter-clockwise to the "start" position.
- (3) Turn the ignition switch to the "I" position (red light on).
- (4) In cold weather pull out on the choke control knob. The engine will not continue to run with the choke in this position; therefore, when the engine starts, push the choke control knob in. It is not always necessary to choke the engine.
- (5) Push the "starter" button. Release the button when the engine begins to run.

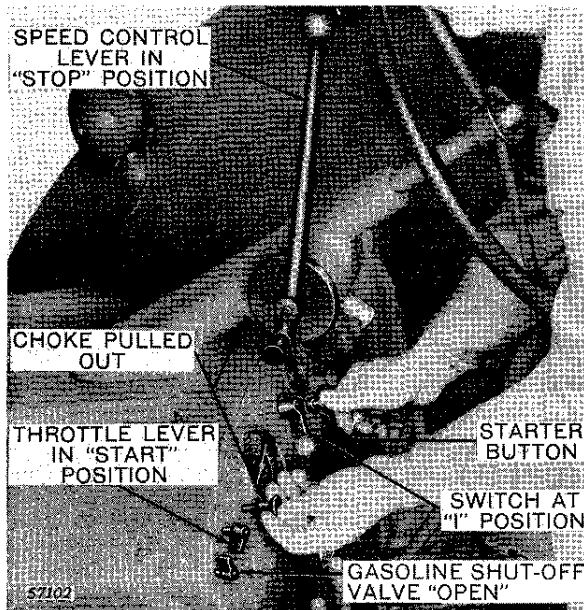


Figure 10-10-1—Starting the Cranking Engine

STARTING THE CRANKING ENGINE

- (1) Open the gasoline shut-off valve two or three turns by turning the handle counter-clockwise (Figure 10-10-1).

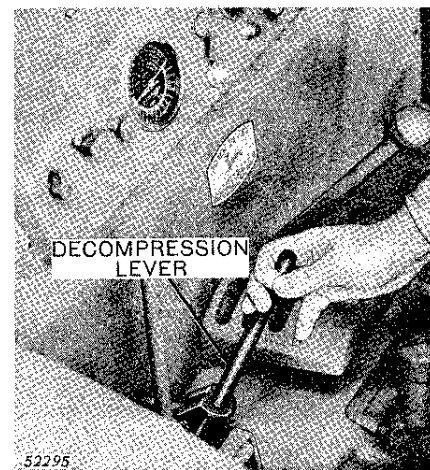


Figure 10-10-2—Operating Decompression Lever

(4) Slowly pull the cranking engine clutch lever all the way to the rear (Figure 10-10-3).

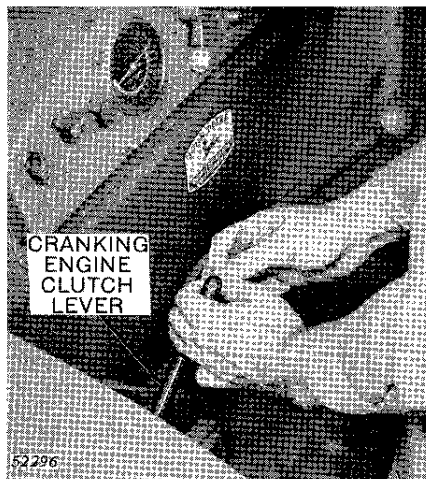


Figure 10-10-3—Operating Cranking Engine Clutch Lever

Movement through the first half of the lever travel engages the cranking engine with the diesel engine. Movement through the second half of lever travel engages the cranking engine clutch.

The two levers (decompression and clutch lever) can be locked in the rear or engaged position (Figure 10-10-4). Allow the cranking engine to motor the diesel engine until oil pressure registers on the oil gauge. In cold weather it is normally necessary to motor the diesel engine longer before it will start.

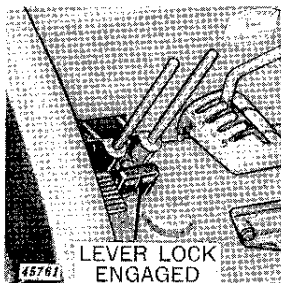


Figure 10-10-4—Lever Lock Engaged

(5) Release the decompression lever. This puts the diesel engine on full compression. Allow the engine to turn over several revolutions on full compression, then advance the speed control lever about half way (Figure 10-10-5).

(6) As soon as the diesel engine starts, release the cranking engine clutch lever. In cold weather, if the diesel engine fails to start in 15 seconds, re-

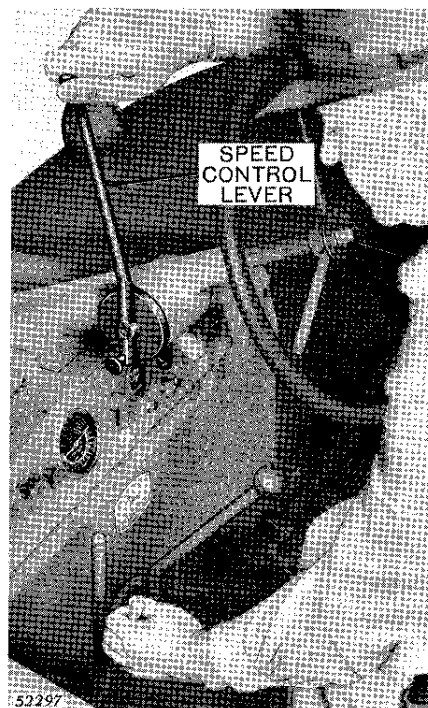


Figure 10-10-5—Advancing Speed Control Lever

turn diesel engine speed control lever to the "stop" position and continue to motor the diesel engine on full compression. After about a minute, try again to start the diesel engine. Repeat procedure until engine starts.

CAUTION: Do not motor the diesel engine on full compression for more than 15 seconds at any one time with the speed control lever advanced while trying to start the engine. The injected fuel can cause trouble.

(7) Use the speed control lever to bring the diesel engine to desired operating speed. The engine is adjusted to run at the correct speed at the factory—1125 rpm under full load and approximately 1250 rpm at fast idle. **CAUTION:** Under no circumstances should the engine be operated at a fast idle speed higher than specified. The engine is designed to operate at these speeds. High fuel consumption, excessive smoke from the exhaust, together with increased repair and maintenance costs can result from operating the engine at speeds above those specified.

Operation of the tractor at engine speeds other than those specified by the factory, will serve to void the warranty.



*Always Make Sure There Is Plenty of Ventilation
Before Starting the Tractor Engines*

WARM-UP PERIOD

Before placing the tractor under full load, be sure it is warmed up to proper operating temperature.

A good practice is to idle engine at about half speed for 5 minutes and at full speed for the same length of time before applying a load.

When starting to work with a cold tractor it is best to operate for about 30 minutes in a lower gear than is normally required for the load. This will give the oil a chance to circulate freely and will prevent undue wear on engine and transmission parts.

STOPPING THE CRANKING ENGINE

(1) Shut off the gasoline to the cranking engine by turning the shut-off lever clockwise.

(2) Turn cranking engine throttle lever counter-clockwise to "start" position and wait a

few moments to allow the engine to use all the gasoline in the carburetor.

(3) Turn the ignition switch to the "off" position (red light out). **This is important.**

STOPPING THE DIESEL ENGINE

Idle the engine a few moments before you stop it. This permits it to cool off gradually. Sudden cooling of a hot engine causes extreme contraction of the heated metal parts. In freezing weather never drain the water immediately after stopping the engine for the same reason.

To stop the diesel engine, pull the speed control lever stop button out and move the speed control lever all the way back (Figure 10-10-6). The purpose of the stop button is to permit moving the speed control lever to the idling position without stopping the engine. When the speed control lever is pulled all the way back, the fuel supply to the engine is cut off and after a few revolutions, the engine will stop.

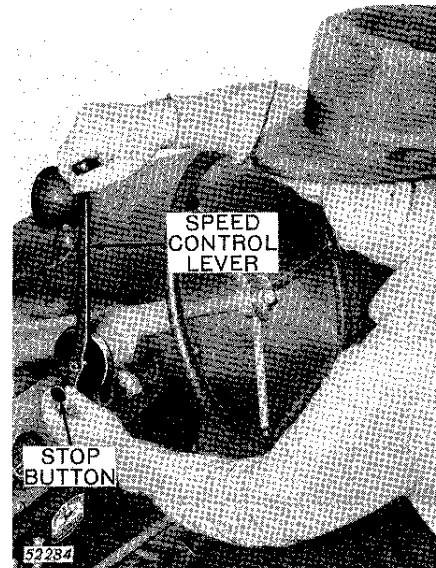


Figure 10-10-6—Stopping the Diesel Engine

Group 15

SPECIFICATIONS

PERFORMANCE:**Capacity for Work:**

Five 14-inch plow bottoms or an equivalent load in most soil conditions.

Maximum Horsepower:

Belt 67-1/2 approx.
Drawbar 61-3/4 approx.

CAPACITIES (U.S. MEASUREMENTS):

Fuel Tank 32-1/2 Gals.
Gasoline Tank 1 Qt.
Crankcase (Diesel) 3-1/2 Gals.
Transmission (Diesel) 3-1/4 Gals.
Crankcase (Cranking Engine) 1 Qt.
Transmission (Cranking Engine) 1/2 Pt.
Powr-Trol 3 Gals.
Power Shaft Clutch 3-3/4 Qts.
Remote Cylinder (each) 1-3/4 Qts.
Cooling System 8-3/4 Gals.
Power Steering Reservoir 5-1/2 Qts.

SPEEDS:

Gear 15-34 Tires
1st Regular 2-1/3 mph
1st Optional 1-3/4 mph
2nd 3-1/2 mph
3rd 4-1/2 mph
4th 5-1/3 mph
5th 6-3/4 mph
6th 12-1/4 mph
Reverse 2-2/3 mph

DIESEL ENGINE:

Type Two-cylinder, cast-in-block, valves-in-head.
Bore and Stroke 6-1/8 x 8"
Compression Ratio 16 to 1
Displacement 471-1/2 cu. in.
Engine Speeds:
Load 1125 rpm
Fast Idle 1250 rpm
Slow Idle 750 rpm

CRANKING ENGINE:

Type Four-cylinder, V-type, valves-in-head.
Bore and Stroke 2 x 1-1/2"
Displacement 18.85 cu. in.
Engine Speeds:
Load 4500 rpm
Fast Idle 5000 rpm
Slow Idle 4000 rpm

LUBRICATION SYSTEM:

Type Force-feed pressure system with full-flow oil filter.

FUEL SYSTEM:

Type Gravity to sediment bowl. Transfer pump through filters.
Air Cleaners . . . Oil-wash type.

COOLING SYSTEM:

Type Pressure system. Centrifugal pump with temperature controlled by automotive-type thermostats.

IGNITION SYSTEM (CRANKING ENGINE):

Type Battery-distributor.
Distributor
Point Cap020-in.
Spark Plugs:
Size 14 mm
Spark Plug Gap025-in.

ELECTRICAL SYSTEM:

Battery Voltage 6 Volts
Generator Regulation Voltage
Battery Size Group 1

CLUTCH:

Type Hand-operated, eight 9-1/4" dry disks.



BELT PULLEY:

Diameter..... 12-7/32-in.
 Width..... 9-in.
 Belt Speed..... at 1125 rpm—3600 fpm at
 1000 rpm—3200 fpm
 (ASAE-SAE Standard).

TRANSMISSION:

Type..... Six forward speeds and one
 in reverse. (1-3/4 mph 1st
 speed available as op-
 tional equipment.)
 Gears..... Selective type, straight
 spur-cut gears, forged and
 heat-treated.
 Bearings..... Shafts operate on six ta-
 pered roller bearings.

BRAKES:

Type..... Automotive type, internal
 expanding.

POWER TAKE-OFF SHAFT:

Shaft diameter..... 1-3/8-in.
 Shaft rpm..... 536
 Splined end ahead of hitch..... 14-in.
 Splined shaft above ground..... 26-1/2-in.

POWR-TROL:

Type..... Direct engine driven with
 single or dual function re-
 mote cylinder control
 valve.

REAR AXLES:

Diameter..... 3-1/4-In.
 Bearings..... Four tapered roller bearings.

FRONT WHEELS AND TIRES:

Bearings..... Four tapered roller bearings.
 Tires..... 7.50 x 18 4-ply regular, 7.50
 x 18 6-ply available.

REAR WHEELS AND TIRES:

15-34 6-ply on cast disk wheels (recommended
 for average field conditions); 14-36 6-ply,
 18-26 8-ply and 15-34 or 18-26 cane and rice
 available.

TREAD ADJUSTMENTS:

Front..... 56-1/2" and 63"
 Rear..... 64-1/2" or 68-1/2" with
 14-34 and 15-34 tires;
 67-1/2" or 75-1/4" with
 18-26 tires.

DIMENSIONS:

Wheel Base..... 85-1/4"
 Over-All Height..... 81"
 Height to top of steering wheel.... 80-3/4"
 Over-All Length..... 142-3/4"
 Turning Radius..... 15' 6"
 Shipping weight with power shaft,
 Powr-Trol and power steering
 (approx.)..... 8000 lbs.

*Weights are for tractors dry and with wheel equip-
 ment as shown under "Front Wheels" and "Rear
 Wheels."*

Group 20

FUELS AND OILS

FUELS

CRANKING ENGINE FUEL.

The John Deere cranking engine is designed to operate on regular gasoline with a minimum octane rating of 80 (motor method), 86 (research method). The gasoline should be fresh and clean. No difficulty will be experienced with this fuel if the simple operating instructions are followed.

DIESEL ENGINE FUEL.

Either No. 1-D or No. 2-D diesel fuel, as defined by ASTM Designation D-975-53T for diesel fuels, should be used. The No. 2 fuel is the heavier and will produce more work per gallon. General specifications are listed as follows:

Flash Point—100° F. minimum.

Pour Point—For cold weather operation the pour point should be specified 10° F. below the temperature at which the engine is to be operated.

Cloud Point—The cloud point is the point at which some elements in the fuel start to congeal, making it appear opaque or cloudy, 10°F. above the pour point.

Distillation Temperature—90% recovered at 675° F. maximum.

Viscosity at 100° F.—Saybolt Universal Sec. 30.0 minimum, 45 maximum.

Cetane Number—40 minimum. Low atmospheric temperatures as well as engine operation at high altitudes may require use of fuels with higher cetane ratings.

Sulphur—The sulphur content should be as low as possible, preferably less than 0.5% and in no case over 1.0%

Sediment and Water—0.10% maximum.

OILS

CRANKING ENGINE CRANKCASE OIL TYPE.

For average service conditions, oils specified "For Service MM" are recommended for use in the cranking engine. For severe conditions, as represented by extensive use of the cranking engine during severe cold weather it may be possible to extend engine life by using oils specified "For Service MS."

No difficulty will be encountered if the same type of oil specified for the diesel engine is used in the cranking engine so long as the correct weight is used.

DIESEL ENGINE CRANKCASE OIL TYPE.

The petroleum industry markets two types of crankcase oils for use in diesel engines. These types have been defined by the American Petroleum Institute as follows:

Service DM—Oils suitable for service typical of diesel engines in any operation where there are no exceptionally severe requirements for wear or deposit control due to fuel or engine design characteristics. Sometimes this oil is sold as "Series 1" oil.

Service DS—(No previous general recognition; sometimes known as "Series 2"). Oil suitable for service typical of diesel engines operating under extremely severe conditions or having design characteristics or using fuel tending to produce abnormal wear or deposits.

Oil used in the diesel engine crankcase should be definitely designated for diesel engines.

For average service conditions and when the fuel has less than 0.5% sulphur, oils specified "For Service DM" are recommended for use in the diesel engine crankcase.

For exceptionally severe service, combinations of heavy loads and high temperatures, or low-temperature start and stop service, or if the fuel contains more than 1.0% sulphur, oils specified "For Service DS" are recommended.

Generally speaking, engines serviced with oil specified "For Service DS" will be cleaner inside and operate for longer periods of time before having to be serviced.

NOTE: Oils classified "For Service DG" are not recommended.

Section 20

Predelivery, Delivery, After-Delivery, and 150-Hour Services

Group 5

DESCRIPTION

These instructions have been written to assist you in performing *Predelivery, Delivery, After-Delivery, and 150-Hour Services* on new "820" Series Tractors as outlined in the John Deere Tractor Service Policy (Figure 20-5-1), accompanying each new tractor.

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Figure 20-5-1—John Deere Tractor Service Policy

The service policy, together with an instruction booklet covering the proper use of the policy

TO THE JOHN DEERE DEALER

WHAT THIS SERVICE POLICY MEANS TO YOU

This Service Policy is tangible evidence of your interest in the customer's complete satisfaction with the new tractor he has just purchased. It will impress him with your sincerity and is proof, in writing, that you have an interest in him and his tractor after the sale has been made.

Each item of Predelivery, Delivery, and 150-Hour Service has been carefully considered by the factory. If these services are conscientiously performed you will have fewer complaints about poor tractor performance. This will mean an appreciable reduction in the number and cost of "free" service calls, and increased customer satisfaction.

57292

-1-

Figure 20-5-2—Service Policy Instruction Booklet

(Figure 20-5-2), is inserted in the Operator's Manual envelope of each new tractor leaving the factory. This service policy contains detailed check lists for three specific inspections: Predelivery, Delivery, and 150-Hour Inspection. Each item in these check lists has been carefully considered by the factory. If these services are conscientiously performed, you will have fewer complaints about poor tractor performance. This will mean an appreciable reduction in the number and cost of "free" service calls. Increased customer satisfaction will be further assured.

The service policy is tangible evidence of your interest in the customer's complete satisfaction with the new tractor he has just purchased. It will impress him with your sincerity and is proof,

in writing, that you have an interest in him and his tractor after the sale has been made.

This section is divided into three major groups: Group 5—Description; Group 10—Predelivery and 150-Hour Services; and Group 15—Delivery and After-Delivery Services. Figures 20-10-1 and 20-10-2 in Group 10 are reproductions of the Predelivery and 150-Hour Service check lists as they appear in the service policy. These illustrations serve as quick reminders of all points on "820" Series Tractors which should be serviced by the dealer's serviceman.

Figure 20-15-1 in Group 15 is a reproduction of the Delivery Service check list as it appears in the service policy. This service interval has been separated from Predelivery and 150-Hour Services since it covers deliveryman—customer dis-

cussion of tractor operation and service.

Detailed instructions follow each check list. Note that each point on the illustrations is numbered. For complete instructions regarding any item, refer to the like-numbered paragraph in the detailed instructions which follow the lists.

Each tractor is manufactured with care and precision. Before the tractor leaves the factory, it is thoroughly inspected, adjusted, and tested. However, during shipment and storage, many situations exist which may affect the general condition of the tractor. Also certain services (such as filling fuel tank and inflating tires to proper pressure), which cannot be done at the factory, must be performed at the dealership. It is, therefore, important that the tractor be serviced and inspected before delivery to the customer.